REMARKS

This responds to the office action mailed February 26, 2004 in connection with the above identified patent application. Prior to entry of this amendment, claims 1 to 19 were pending in the application.

By this amendment claims 1, 3, 8 and 15 have been amended and new claims 20 and 21 have been added.

It is to be noted that the amended claims 1, 3, 8 and 15 and added claims 20 and 21 do not introduce new matter, since they contain all the limitations that were disclosed in the original specification and claims.

Specification

The specification has been voluntary amended to comply with the amendment of claim 15 regarding the word "frictionless" as discussed below.

Claim Objections

Claim Rejection - 35 U.S.C. 102

Claims 1 to 19 have been rejected under 35 U.S.C. 102(e) as being anticipated by Davies (2003/0029258).

In the Examiner's opinion, Davies discloses a shear pin 28, a primary body 10, a secondary body 20, an auxiliary body 24, at least two bearings 26 and the secondary body 20 is directly connected to control surface via connectors.

Claims 1, 4, 5, 8, 14, 16, 17, 18 and 19 have been rejected under 35 U.S.C. 102(b) as being anticipated by Shaheen (6672540).

In the Examiner's opinion, Shaheen discloses release means 78, a primary body 18, a secondary body 95 and an auxiliary body 54b.

Original claim 1 has been amended in order to overcome the above objections.

In particular, claim 1 has been amended introducing features from the original description, to better point out the working principle of the present invention.

Support for the added phrase reciting "*with the secondary body de-coupled from the auxiliary portion, said auxiliary portion being free to rotate together with the screw with respect to the secondary body upon any rotation of the screw*" can be found on page 10, at lines 9 to 17 which recites: "*After the breakage of the pin 25, the auxiliary portion 21 is uncoupled, in the rotation motion, from the secondary body 19 but remains integral with the same secondary body 19 along the longitudinal axis 6. The bearings 26 bear the loads along the longitudinal axis 6 of the screw 5 and the transverse loads caused by the loss of the coaxial condition between the screw 5 and the primary body 8 and secondary body 19. The screw 5, set in rotation by a command from the pilot, drags with it the auxiliary portion 21 which rotates freely. Consequently, the rotation of the screw 5 does not determine the axial motion of the secondary body 19, of the primary body 8, or the motion of the control surface 3. The pilot is unable to move the stabilizer.*".

In particular, it is unambiguously clear from the above portion of the description, from original figure 1, and from the overall text that, in case of breakage, the auxiliary portion 21 rotates together with the screw 5 and the screw 5 can be freely turned without imparting any motion to the primary and secondary bodies 8, 19.

Davies (US2003/0029258) does not show that the its auxiliary portion (24) is free to rotate together with the screw (8) with respect to the secondary body upon any rotation of the screw (8).

By contrast, differently from the actuator claimed in present claim 1, the locking nut of Davies (US2003/0029258) is designed to produce a "*locknut arrangement thereby causing further rotation of the ballscrew to be inhibited*", as reported on page 3, lines 20-23 of paragraph [0034] of US2003/0029258A1 (Davies). In the event of failure, the ballscrew of Davies starts rotating until it reaches the locknut condition (see all paragraph [0034]). This is also remarked on paragraph [0039] of Davies, reciting: "*In each case, the nut 20 and the locknut 24 are forced into engagement with the thread of the ballscrew, the reaction forces being in opposite directions giving rise to a self locating operation*".

Shaheen does not show means for de-coupling the secondary body (reference numeral 95 for the Examiner) from the auxiliary portion (reference numeral 54b for the Examiner) in the rotation motion about the longitudinal axis.

Furthermore, Shaheen does not show that, with the secondary body (95 for the Examiner) de-coupled from the auxiliary portion (54b for the Examiner), the auxiliary portion is free to rotate together with the screw with respect to the secondary body upon any rotation of the screw.

By contrast, differently from the actuator claimed in present claim 1, the halves 54a, 54b of the split nut 54 of the actuator of Shaheen (US6672540) can not rotate with respect to the slider 66. The first half 54a is also provided with sliding keys 102 which engage into recesses 103 in the slider 66 (see figure 5 of US6672540). The second half 54b is substantially fixed (column

10, lines 14 and 15). As a consequence, the rotation both of the first 54a and second 54b half about the longitudinal axis of the screw 20 with respect to the slider 66 is not permitted.

Furthermore, column 10, lines 21-25, of Shaheen clearly recites: "*The halves 54a, 54b of the split nut 54 are forced into against the ballscrew 20 with enough frictional engagement to prevent the ballscrew 20 from rotation, up to a torque which is higher than that torque which can be applied by the drive motor and gear assembly 24*".

Since nor Davies neither Shaheen shows that "with the secondary body de-coupled from the auxiliary portion, said auxiliary portion being free to rotate together with the screw with respect to the secondary body upon any rotation of the screw", Applicant believes that present claim 1 is new and inventive with respect to the cited prior art documents.

Furthermore, the features which differentiate the actuator according to present claim 1 with respect to Davies and Shaheen allow to solve the technical problem of preventing further damages to the device and allowing the nearly complete recovery of the parts that comprise it, as already originally remarked in the specification as filed, page 4, lines 16-18. Indeed, no high and dangerous friction torques are applied between the parts.

The Applicant points out that since all the dependent claims 2 to 19 depend now directly or indirectly upon and contain all the limitation of patentable claim 1, they are felt to be patentable too.

New independent claims 20 and 21 have been added to better point out the structure of the invention.

Regarding both claims 20 and 21, support for the phrase reciting "*the secondary body being engageable to the screw only through the engagement surface of said auxiliary portion*" can be found in original figure 2 of the present application and can be inferred from the overall description. Indeed, since in the de-coupled configuration the screw must be free to rotate with respect to the secondary body, no other portion integral with said body has to interfere with the thread of the screw.

Regarding only claim 21, support for the phrase reciting "*the auxiliary portion being integral with the secondary body along the longitudinal axis*" can be found on page 8, line 11, reciting "*The two bodies 19, 21 are instead axially integral.*", and on page 10, lines 9-11, reciting "*After the breakage of the pin 25, the auxiliary portion 21 is uncoupled, in the rotation motion, from the secondary body 19 but remains integral with the same secondary body 19 along the longitudinal axis 6.*". Support for the phrase reciting "*preventing any axial motion of said secondary body*" can be found on page 10, lines 15 to 17, reciting "*Consequently, the rotation of the screw 5 does not determine the axial motion of the secondary body 19, of the primary body 8, or the motion of the control surface 3.*".

Also newly added independent claims 20 and 21 are new and inventive over Davies and Shaheen since both claims 20 and 21 include the subject matter of patentable claim 1.

Claim Rejection - 35 U.S.C. 112

The Examiner rejected claims 9 and 10 since no antecedent basis for the "friction reducing means" was present. The Examiner rejected claim 11 since no antecedent basis for the "weakened connection" was present. To provide

such bases, claim 3 has been amended to depend on claim 2 and claim 8 has been amended to depend on claim 3.

Finally, the Examiner rejected claim 15 since the term "frictionless" was not appropriate as nothing is frictionless. In claim 15 and throughout the description, the "frictionless material" has been changed into "low friction material".

In view of the foregoing, reconsideration and withdrawal of the above rejections is respectfully requested.

Conclusion

The prior art made of record but not applied by the Examiner has been carefully considered but is submitted to be less relevant than the references previously discussed.

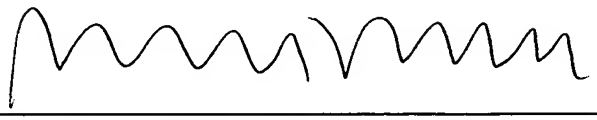
All matters having been addressed above and in view of the pending claims and remarks, Applicant respectfully requests the entry of this Amendment, the Examiner's reconsideration of the application, and the timely allowance of the pending claims.

Applicants' counsel remains ready to assist the Examiner in any way to facilitate and expedite the prosecution of this application.

Charge the fee of $9 for the one claim in excess of 20 added herewith to deposit account No. 25-0120.

Respectfully Submitted,

YOUNG & THOMPSON



Robert J. Patch, Reg. No. 17,355
745 South 23rd Street
Arlington, VA 22202
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

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